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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,194	08/19/2004	Hideaki Miura	890050.497USPC	3719

500 7590 09/26/2007
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EXAMINER

GIESY, ADAM

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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09/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/505,194	Applicant(s) MIURA ET AL.	
	Examiner Adam R. Giesy	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-7,10-12,15,16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,5-7,10-12 and 15 is/are allowed.
- 6) ☒ Claim(s) 16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al. (hereinafter Miyamoto – US Pat. No. 6,236,635 B1) in view of Ito et al. (hereinafter Ito – US Pat. No. 5,768,251).

Regarding claim 16, Miyamoto discloses a method for recording information in an optical recording medium having at least a first recording layer and at least a second recording layer, the method comprising: projecting a laser beam having pulses modulated in power between a plurality of levels onto the optical recording medium via light incidence plane, wherein at least a recording power is included in the plurality of levels (see Figures 2 and 12 – note that there are several power levels labeled P0-P10 on the right-hand side of Figure 12); forming a plurality of recording marks on the optical recording medium (see column 5, lines 52-55); setting the recording power of a top pulse and a last pulse of the laser beam to a substantially equal level lower than the recording power of other pulses within the laser beam when at least one recording mark is to be formed in the first recording layer (see Figure 12 – note that in the 6T mark, the first and last pulses of the multipulse train are lower than the middle multipulses); and setting the recording power of the top and/or last pulse to be substantially the same as

the recording power of the other pulses within the laser beam when at least one mark is to be recorded in the second recording layer (see Figure 11). Miyamoto fails to disclose that the recording medium has two recording layers.

Ito discloses an optical storage medium in which two single layer discs are combined to create a two layer disc (see Figure 14a; see also column 13, lines 1-5).

Furthermore, the Examiner asserts that it would be inherent that if a two sided disc as disclosed by the combination of Miyamoto and Ito (as discussed in the claim 16 rejection above) were to be placed in the apparatus as disclosed by Miyamoto (Figure 2), the first recording layer would be located on the light incident plane in relation to the second recording layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of recording to a single layer disc as disclosed by Miyamoto with a two recording layer disc created from two single layer discs as disclosed by Ito, the motivation being to create a higher capacity optical storage medium that decreases the phenomenon of cross erasure between tracks.

Regarding claim 18, Miyamoto discloses a device for recording information on an optical recording medium, the device comprising: a means for rotating an optical recording medium having a first recording layer (see Figure 2, element 2); and an optical head operable to transmit a laser beam having a plurality of pulses onto the first recording layer to record information thereon (see column 5, lines 52-55). Miyamoto fails to disclose that the recording medium has two recording layers.

Ito discloses an optical storage medium in which two single layer discs are combined to create a two layer disc (see Figure 14c; see also column 13, lines 1-5).

Furthermore, the Examiner asserts that it would be inherent that if a two sided disc as disclosed by the combination of Miyamoto and Ito (as discussed in the claim 18 rejection above) were to be placed in the apparatus as disclosed by Miyamoto (Figure 2), the second recording layer positioned on a side of the optical recording medium opposite the first recording layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of recording to a single layer disc as disclosed by Miyamoto with a two recording layer disc created from two single layer discs as disclosed by Ito, the motivation being to create a higher capacity optical storage medium that decreases the phenomenon of cross erasure between tracks.

Regarding claim 19, Miyamoto and Ito disclose all of the limitations of claim 18 as discussed in the claim 18 rejection above. Miyamoto further discloses that the optical head is operable to record information on the first recording layer with one of a top pulse and a last pulse of the laser beam set with a lower recording power level than a recording power level of a multi-pulse of the laser beam (see Figure 12 – note that in the 6T mark, the first and last pulses of the multipulse train are lower than the middle multipulses).

Regarding claim 20, Miyamoto and Ito disclose all of the limitations of claim 18 as discussed in the claim 18 rejection above. Miyamoto further discloses that the optical head is operable to record information on the recording layer with one of a top pulse

and a last pulse of the laser beam set with a recording power level substantially equivalent to a recording lower level of a multi-pulse of the laser beam (see Figure 11).

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter:

Claims 1, 5-7, 10-12, and 15 are allowed over the prior art of record.

Independent claims 1 is allowed since the claim recited an information recording method for recording information in an optical recording medium having at least first and second information recording layers, the method comprising: projecting a pulse-like laser beam whose power is modulated between a plurality of levels, including at least a recording power, onto the optical recording medium via a light incidence plane; forming thereon a plurality of recording marks selected from a group consisting of several types of recording marks with different lengths; setting the recording powers of a top pulse and/or a last pulse of the laser beam used when at least one recording mark is to be formed in the first information recording layer to be lower than the recording power of a multi-pulse thereof, thereby recording information in the first information recording layer, wherein the first information recording layer is located on a side of the light incidence plane with respect to the second information recording layer and the second information recording layer is irradiated with the laser beam via the first information recording layer; and recording information in the second information recording layer with the recording powers of the top pulse and/or the last pulse of the laser beam set to be substantially the same as the recording power of the multi-pulse thereof.

Claims 5 and 6 are allowed as being dependent upon aforementioned independent claim 1.

Independent claim 7 is allowed since the claim recites an information recording apparatus for recording information in an optical recording medium, the information recording apparatus comprising: at least first and second information recording layers where information is recorded by projecting a pulse-like laser beam having power modulated between a plurality of levels including at least a recording power onto the optical recording medium via a light incidence plane and forming thereon a plurality of recording marks selected from a group consisting of several types of recording marks having different lengths, the information recording apparatus being constituted so as to set the recording powers of a top pulse and/or a last pulse of the laser beam used when information is to be recorded in the first information recording layer to be lower than the recording power of a multi-pulse thereof, wherein the first information recording layer is located on a side of the light incidence plane with respect to the second information recording layer and the second information recording layer is irradiated with the laser beam via the first information recording layer wherein information is recorded in the second information recording layer with the recording powers of the top pulse and/or the last pulse of the laser beam set to be substantially the same as the recording power of the multi-pulse thereof.

Claims 10 and 11 are allowed as being dependent upon aforementioned independent claim 7.

Independent claim 12 is allowed since the claim recites an optical recording medium comprising: at least first and second information recording layers in which information can be recorded by projecting a pulse-like laser beam whose power is modulated between a plurality of levels, including at least a recording power, onto the optical recording medium via a light incidence plane and forming thereon a plurality of recording marks selected from a group consisting of several types of recording marks having different lengths, wherein the recording powers are set with information required for setting the recording powers of a top pulse and/or a last pulse of the laser beam used when information is to be recorded in the first information recording layer to be lower than the recording power of a multi-pulse thereof, wherein the first information recording layer is located on a side of the light incidence plane with respect to the second information recording layer and the second information recording layer is irradiated with the laser beam via the laser beam via the first information recording layer wherein information is recorded in the second information recording layer with the recording powers of the top pulse and/or the last pulse of the laser beam set to be substantially the same as the recording power of the multi-pulse thereof.

Claim 15 is allowed as being dependent upon aforementioned independent claim 12.

The closest prior art by Miyamoto et al. (hereinafter Miyamoto – US Pat. No. 6,236,635 B1) discloses recording on an optical disc using a multi-pulse train wherein the top and last pulse are set to be either the same or lower than the rest of the multi-

Art Unit: 2627

pulses. Miyamoto does not disclose multi-layer recording, or using different multi-pulse train on different recording layers in the same disc.

Response to Arguments

4. Applicant's arguments with respect to claims 1, 7, 12, and 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Lee et al. (US Doc. No. 2005/0073930 A1) discloses a recording pattern for an optical disc wherein the recording powers are varied.

b. Furukawa et al. (US Pat. No. 6,345,026 B1) discloses a means for recording on an optical disc using a multipulse train.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam R. Giesy whose telephone number is (571) 272-7555. The examiner can normally be reached on 8:00am- 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne R. Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ARG 9/20/2007



WAYNE YOUNG
SUPERVISORY PATENT EXAMINER

